

Date: Thursday, 5/3/2007 11:35:20 AM
 User: Kim Johnston

Process Sheet

Customer	CU-DAR001	Dart Helicopters Services	Drawing Name	412 X-TUBE INST,LOW NARROW FWD
Job Number	32182			
Estimate Number	12816			
P.O. Number	N/A		Part Number	D412664105
This Issue	5/3/2007	S.O. No. N/A	Drawing Number	D412-664 UNDER REV
Prsht Rev.	NC		Project Number	N/A
First Issue	N/A	Type LANDING GEAR	Drawing Revision	HR C
Previous Run	32181		Material	N/A
Written By			Due Date	6/15/2007
Checked & Approved By	JL 07-05-03		Qty:	1
Comment	Um: Each Est Rev/A New Issue 07-04-05 JLM			

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0	DC	DOCUMENT CONTROL  ①
		Comment: DOCUMENT CONTROL Photocopy bluefile and create labels as per PPP D412-664-105 CHG001 27 07/05/30 KS
2.0	PACKAGING 1	PACKAGING RESOURCE #1 
		Comment: PACKAGING RESOURCE #1 Pick Packing Kit
3.0	D412664145	Crosstube 412 Low 
		Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s) Crosstube 412 Low Batch: B31594
4.0	AN635A	BOLT 
		Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s) Bolt Batch: M101697 ✓ ✓
5.0	AN636A	Bolt 
		Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s) Bolt Batch: M102929 ✓ ✓ 7/6/22 SA

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

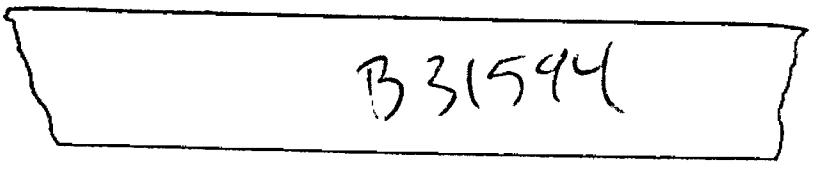
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 5/3/2007 11:35:20 AM
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services		Drawing Name: 412 X-TUBE INST,LOW NARROW FWD
Job Number: 32182		Part Number: D412664105
Job Number: 		
Seq. #:	Machine Or Operation:	Description :
6.0	MS21042L6 	Nut 
Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s) Nut Batch: <u>M101660</u> ✓ ✓		
7.0	AN960JD616 	Washer 
Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s) Washer Batch: <u>M103641</u> ✓ ✓ <u>7/6/22 SP</u>		
8.0	QC4 	INSPECT 100% KITS FOR COMPLETENESS 
Comment: INSPECT 100% KITS FOR COMPLETENESS <u>10/1/22 (1) (2020012201)</u>		
9.0	PACKAGING 1 	PACKAGING RESOURCE #1 
Comment: HAND FINISHING RESOURCE #1 Identify and pack for shipping as per PPP D412-664-105 <u>Draft 8/6/22 w</u>		
10.0	QC21 	FINAL INSPECTION/W/O RELEASE 
Comment: FINAL INSPECTION/W/O RELEASE		
Job Completion 		<u>10/16/22</u>
 <u>B31594</u>		

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

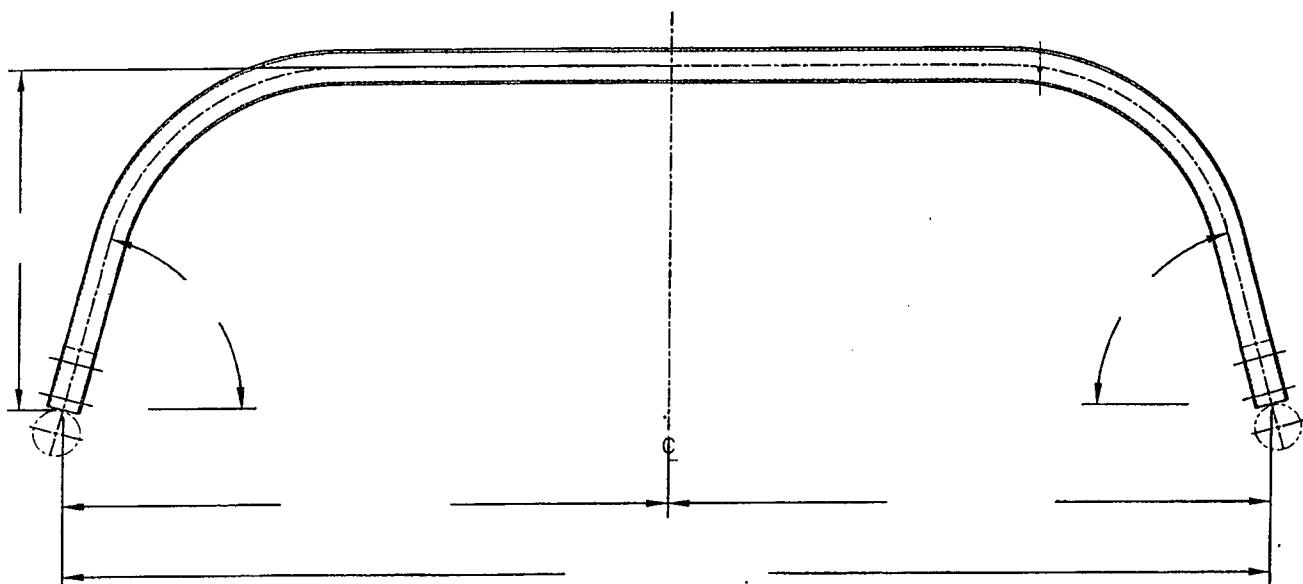
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	32182
Description: Crosstube Low Narrow Fwd (412)	Part Number:	D412-664-105
Inspection Dwg: D412-664-145	Rev: C	Page 1 of 1

Required Dimension	Min	Max
Height	19.23	19.49
1/2 Span	46.47	46.73
Angle	49°	52°
Total Span	92.94	93.46



Comments

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.04.27	New Issue	KJ/JM	<i>[Signature]</i>

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO.	REV. C
		D412-664-145	SHEET 1 OF 3
DATE		TITLE	
07.03.29		SCALE CROSSTUBE ASS'Y (412 LOW-N FWD) NTS	
A	06.12.21	NEW ISSUE	
B	07.03.01	CHG RUBBER CUSHION	
C	07.03.29	CHG CLAMP & RUBBER CUSHION LGTH.	

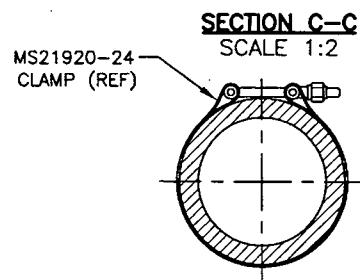
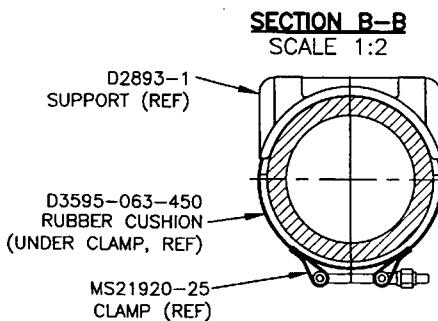
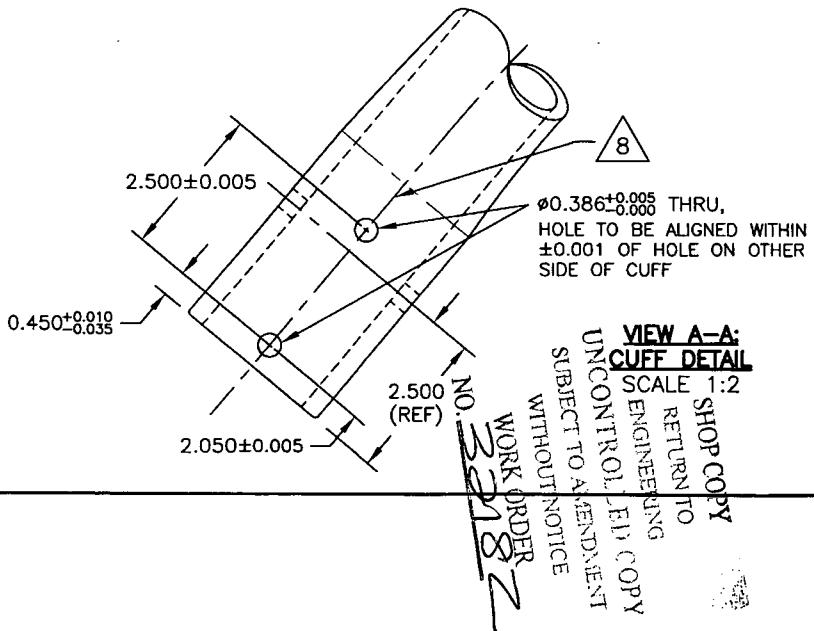
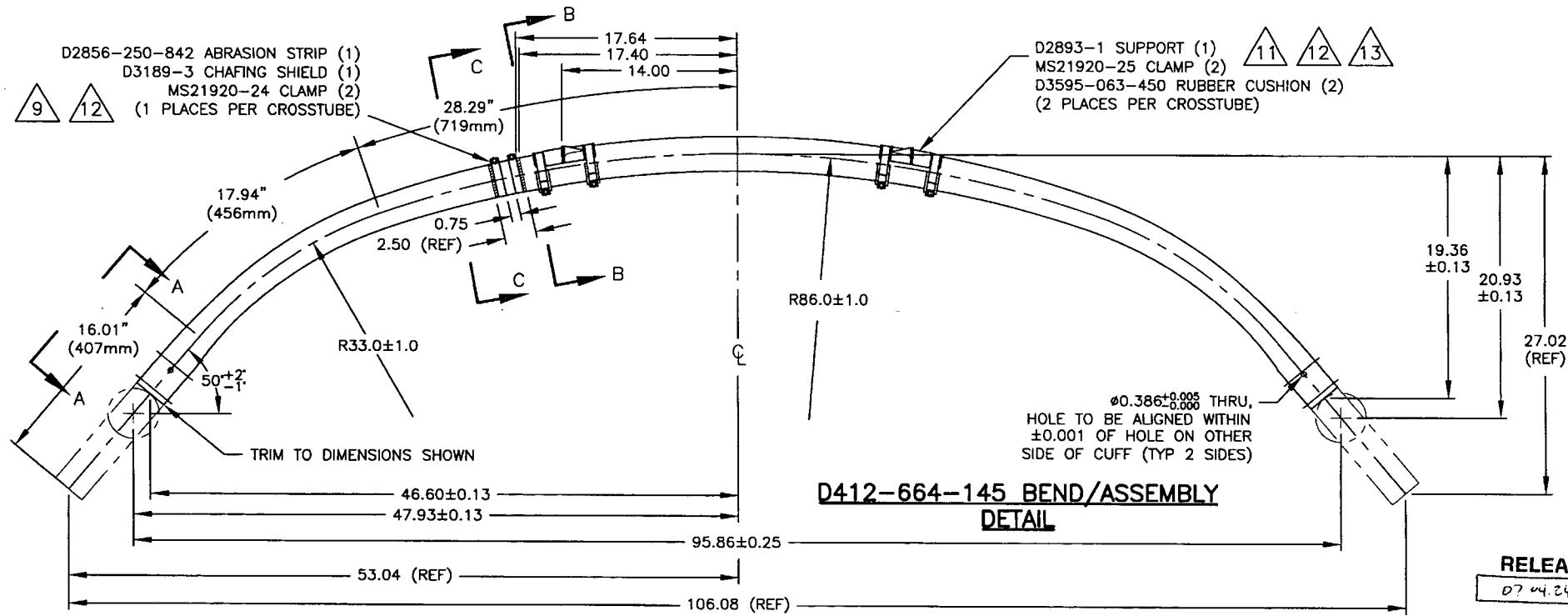
RELEASED07.04.24 ~~07.04.24~~**PARTS LIST:**

Qty	Part Number	Description
X	D412-664-145	CROSSTUBE ASSEMBLY (412 LOW-NARROW FWD)
1	D6019-128	CROSSTUBE
1	D2856-250-842	ABRASION STRIP
2	D2893-1	SUPPORT
1	D3189-3	CHAFING SHIELD
4	D3595-063-450	RUBBER CUSHION
2	MS21920-24	CLAMP
4	MS21920-25	CLAMP (OR MS21920-26)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

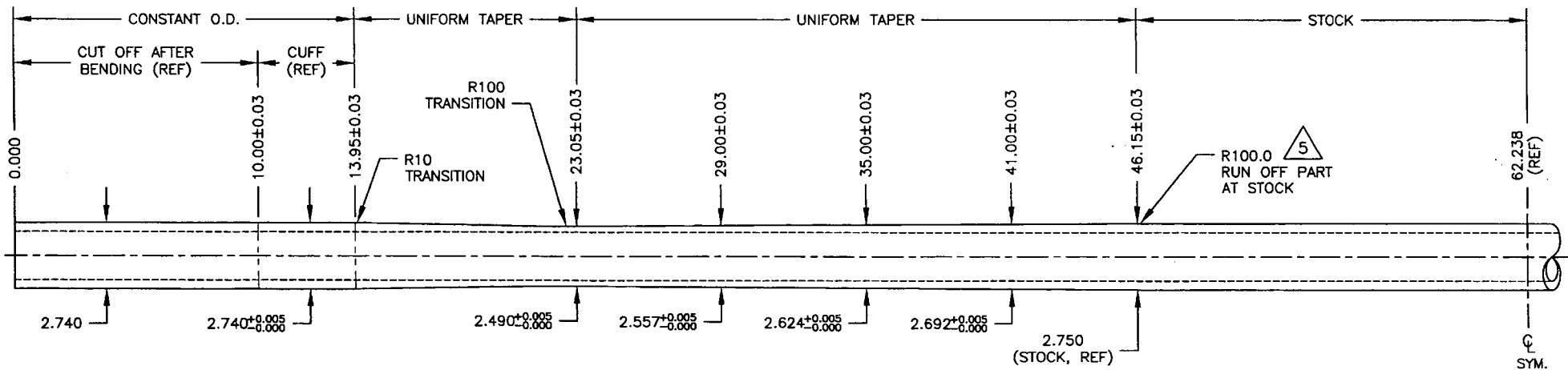
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6019-128
FINISHED LENGTH = 124.48 ± 0.020 (BEFORE BENDING/TRIMMING)
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR D3189-3 CHAFING SHIELD AND ASSOCIATED HARDWARE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2856-XXX-YYY ABRASION STRIPS WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE SUPPORT.
- 13) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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 AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 32182



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DESIGN	DRAWN BY	DART	DART AEROSPACE LTD. HAWKSBURY, ONTARIO, CANADA
9	9	9	REV. C
CHECKED	APPROVED	9	DRAWING NO. D412-664-145
DATE	07.03.29		SHEET 2 OF 3 TITLE CROSSTUBE (412 LOW-NARROW FWD) 1:2



D412-664-145 MACHINING DETAIL

NO. 32182

WORK ORDER

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DESIGN GP DRAWN BY GP
CHECKED GP APPROVED GP
DATE 07.03.29

DART

DART AEROSPACE LTD.
HAMILTON, ONTARIO, CANADA

RELEASED
07.04.09

DRAWING NO.

REV. C
D412-664-145
SHEET 3 OF 3

TITLE

SCALE
CROSSTUBE (412 LOW-NARROW FWD) 1:4